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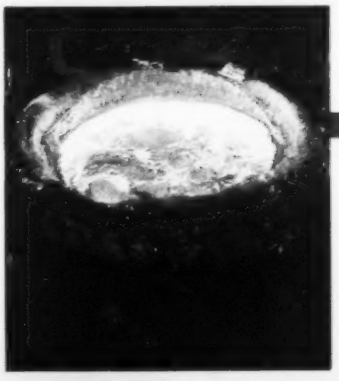
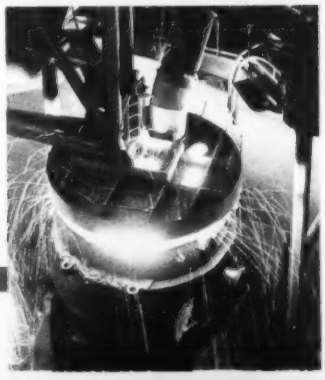
IRON AGE

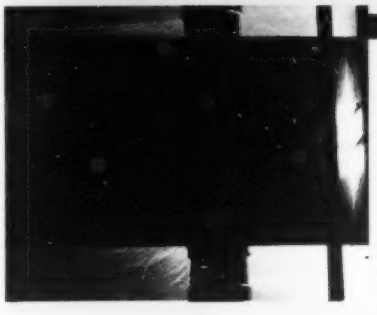
THE MANAGEMENT MAGAZINE FOR METAL PRODUCERS

A Fairchild Business Publication

JUNE 1988







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PLUS EPA'S NEW EF DUST RULES

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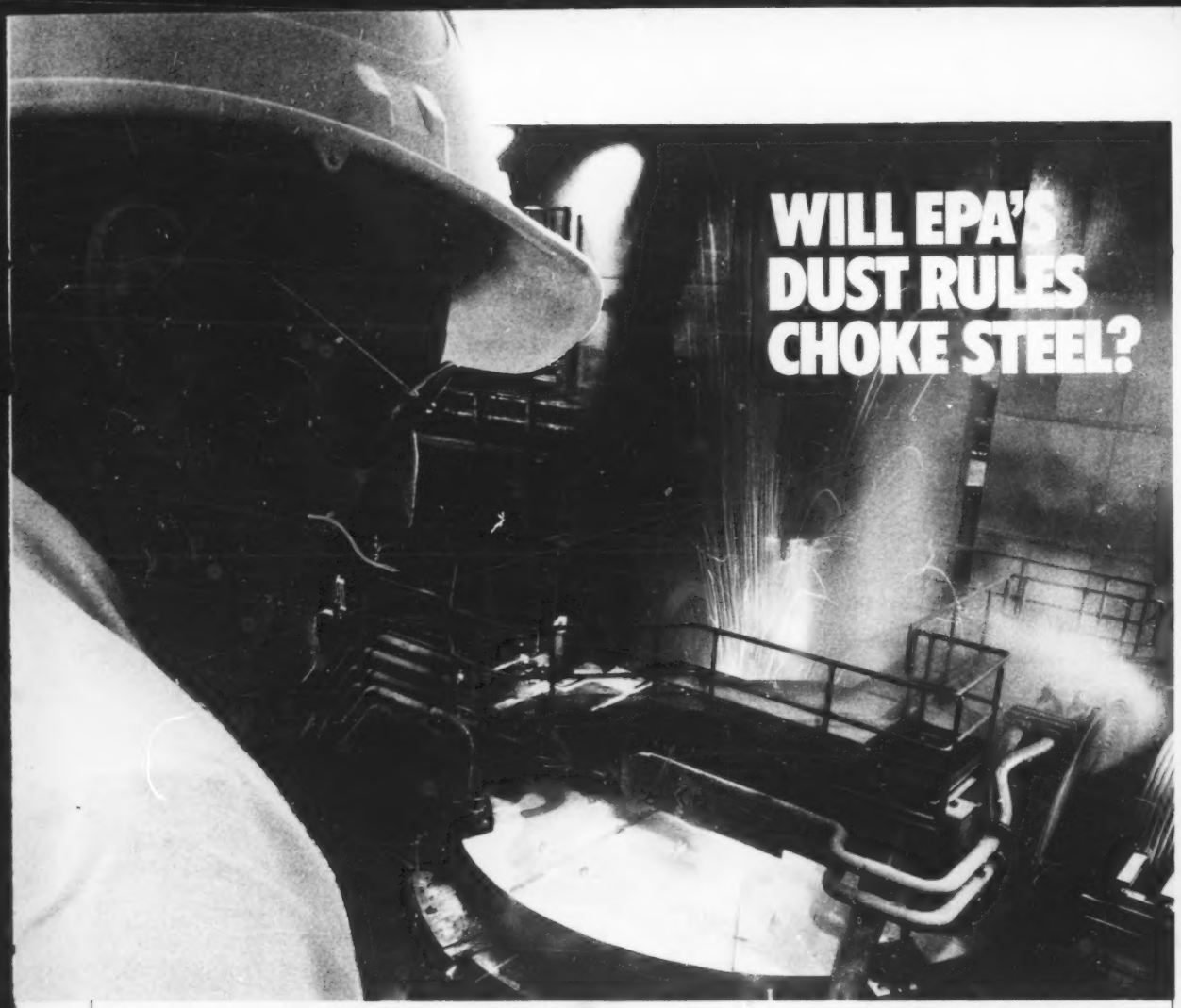


WILL EPA'S DUST RULES CHOKE STEEL?

The Federal regulators have opted for thermal recovery as the best means to dispose of the 500,000 tons of EAF dust produced each year.

The federal government's proposed rules for the disposal of electric arc furnace (EAF) dust will have a devastating impact on the steel industry, reducing production and hiking steel costs.

Or, these costly requirements will do little to slow the growth of electric furnace steel production, save for inducing producers to beef up their transportation networks in order to safely dispose of the toxic dust waste.

That either of these scenarios will come to pass probably is unlikely in the near future. But the fact that responsible steel industry executives would reach such divergent conclusions about the dust regulations is indicative of just how divisive the government's proposal has been.

Touching off this intra-industry debate was the U.S. Environmental Protection Agency's (EPA) May 23 proposed regulation stipulating how steel producers must dispose of the estimated 500,000 tons of dust produced annually by electric arc furnaces.

Most controversial, the proposal categorizes thermal recovery as the best demonstrated available technology for cleansing the dust of zinc and other toxic metals before it can be dumped in a landfill. Although the agency has not ruled out other recovery methods, no other treatment methods currently meet the agency's standards.

Thermal reprocessing costs up to $100 for a ton of dust, depending upon its recoverable zinc content. That's about twice the cost of dumping the material. Each 52 tons of steel produced in electric furnaces produces one ton of dust.

In selecting thermal technology as the best way to dispose of the dust, the EPA dealt a blow to many electric arc furnace steel firms, who had hoped and expected the agency to permit the use of chemical fixation, or stabilization, to treat the dust wastes before disposal in a landfill.

This process locks up the hazardous metals in various compounds and prevents them from leaching into the soil or groundwater. Chemfix Technologies, Inc., Kenner, La., a leading chemical

stabilization contractor, estimates the cost of treating one ton of dust at between $40 and $70 a ton.

8/8/88

While the EPA continues to accept comments on its proposal, it has said in no uncertain terms that it will issue its final rule by August 8—dubbed the "8/8/88 decision day" by industry—the deadline for action under the 1984 amendments to the Resource Conservation and Recovery Act. However, as a concession to industry, the agency will permit dumping of untreated dust in state-of-the-art landfills through August 1990.

Steel industry officials, however, say this grace period means little, given the $2 million to $3 million cost to bring an existing landfill into compliance with the new standards.

James F. Collins, National Steel Producers Association president, termed the proposal a prescription for disaster. "Given the enormous costs associated (with) complying with the regulations, they will be a dreadful blow to some companies and have a disastrous impact on those (firms) which now are marginal producers," Mr. Collins said.

"If you suppose that an (EAF steel producer's) after-tax return is $20 a ton and it is reduced to $18 by the cost of complying" with the regulations, he added, "then the 10 pct after-tax impact is quite significant and for... some firms, it could mean their continued viability is in question."

Likewise, the Steel Bar Mills Association, which includes many EAF steelmakers, has warned that if the proposal is implemented, U.S. carbon steel production could drop by 8 pct.

While no steel industry executive or association official has rushed to embrace the agency's proposal, others take a less dire view of its ultimate impact. "While the EPA's regulation will impose new costs, that EAF operators certainly do not want to incur, it ultimately won't affect the growth of this industry," countered Joseph Goodwill, director of the Carnegie-Mellon University-based Center for Metals Production (CMP).

Since 1976, he said, steel produced in electric arc furnaces has increased from 19 pct of all liquid steel made nationwide, to about 38 pct today.

The controversy over the impending regulation, however, hinges on more than just simple economics. Rather, industry officials take issue with the federal agency, and often each other, about the basic tenets underlying the proposal—specifically, the selection of thermal reduction over chemical fixation.

Fixation, as noted, binds up potentially hazardous metals in supposedly inert substances which are then buried in landfills. Thermal reduction is just that: the heat-induced chemical reduction of metals, such as zinc, to metal oxides which then are shipped to other processing facilities and treated to extract the metal.

In this country, Horsehead Resource Development Co., operates a thermal facility in Palmerton, Pa. Another is now coming on line in Calumet, Ill. Both facilities utilize the Waelz kiln in the thermal reduction process. Horsehead also operates the former St. Joe Flame Reactor plant in Monaca, Pa. (see box, p. 26.)

Elsewhere in the U.S., Inmetco, Inc., operates an Ellwood City, Pa., plant, but it handles stainless steel dust exclusively, recovering nickel and chromium. Its capacity is 60,000 tons of dust annually.

Other thermal reduction processes have been suggested as a means for handling the dust, including the plasma reduction processes developed by SKF Engineering, Tectronics Corp. and Plasma Energy Corp. A handful are operating in Europe, but the technology has stirred little interest in the U.S. Also in Europe, Elkem a/s Engineering has built a pilot plant to handle EAF dust at its R&D center in Kristiansand, Norway. Elkem's Multi-Purpose Electric Furnace uses its electric slag resistance furnace and zinc condensing technology of Imperial Smelting Processes, Ltd., to recover zinc and produce a non-toxic slag from EAF dust.

The interest in other thermal treatment process is expected to rise, largely because Horsehead's plants, when operating at maximum capacity, can reprocess no more than 320,000 tons of dust annually. Yet, about 500,000 tons of EAF dust are produced annually in the U.S.

It can take about two years to build a new thermal processing plant and cognizant of this time lag, EPA granted the industry a two-year stay of the thermal processing requirement.

Many steel industry officials contend, however, that this grace period, and the entire regulation for that matter, are shortsighted.

"We are faced with a serious, major problem," said Earle F. Young, the American Iron and Steel Institute's vice president for environment and energy. "We don't know who has the money to build these (thermal reprocessing plants) and how they can be built in time to meet the regulation's deadline.

"Then there's the question of how to (treat) about 500,000 tons of dust each year," Mr. Young added, "when capacity is far short of that."

Transporting EAF Dust

Many dust producers, including industry giants Bethlehem Steel and USX Corp.'s USS division, now ship all residual dust to Horsehead for reprocessing. But for steel producers with plants distant from the Pennsylvania or Chicago-area facilities, the cost for just transporting the dust is a major concern.

Florida Steel Corp. "now ships its EAF dust about 1,000 miles from Tampa to Horsehead's Palmerton facility because we have no" landfill, said James Turner, the Tampa-based firm's environment manager. Not surprisingly, Mr. Turner noted "our (dust) transportation costs are much higher than the cost for thermal treatment."

Armco, Inc., also uses Horsehead given its plants' proximity to the thermal treatment operation. "I don't know what West Coast and Gulf Coast area steel (producers) will do with their wastes since it's a very long haul to get the dust" to Horsehead, said Harold McCume, an Armco engineer in the firm's environment and energy department at Parsippany, N.J.

The long-haul shipment of the unprocessed dust ironically could pose an environmental hazard in its own right. "There is the inherent danger of an accident when shipping any waste long distances, and hazardous waste (EAF dust) could be dumped on the environment," warned Anthony A.A. Stinola, hazardous waste manager with USX's steelmaking division.

Such logistics aside, several industry executives assert that the EPA's selection of the thermal process as the best available technology overlooks crucial economic issues and practical ones, too. "By only permitting thermal technology and no landfills (to dispose of the EAF dust), the EPA reduces competition and gives reclaimers a free hand in pricing," reasoned Florida Steel's Mr. Turner.

"In addition," he said, "Horsehead recovers zinc and has a (requirement) that the dust contain at least 15 pct of this metal. So steel companies that use scrap in their (EAF) furnaces with low zinc content may have a problem."

About 22 pct of all EAF dust produced nationwide has a zinc content of 10 pct or less, according to Oliver Dulle of the Steel Bar Mills Association.

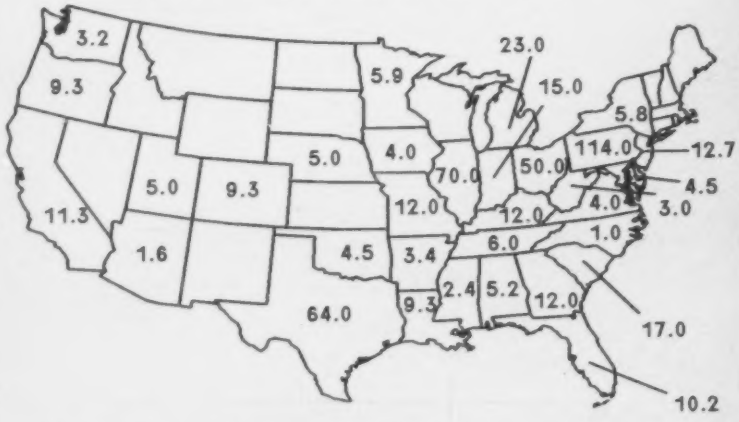
Thomas Unger, Horsehead business development vice president, said the firm "likes to see at least a 20 pct" zinc content in EAF dust processed at its facilities.

Mr. Unger said the Palmerton facility charges $52 a ton of dust and the Calumet plant charges $60.

"Below 20 pct zinc we charge an additional $3-a-ton for each percentage point below 20 pct," he explained. "On rare occasions we

TONS OF DUST PER YEAR BY STATE

TOTAL U.S. EAF DUST PRODUCTION-500,000 TONS/YEAR
(STATE TOTALS IN THOUSANDS OF TONS)



SOURCE: CENTER FOR METALS PRODUCTION

Chemical Composition of Dust From Electric Arc Furnaces
(Lehigh University Study)

CHEMICAL	SAMPLE	
	Carbon steel dust	Stainless steel dust
	(wt.%)	(wt%)
Fe	35.100	31.70
Fe(11)	1.700	3.10
Zn	15.400	1.00
Cd	0.028	0.16
Pb	1.500	1.10
Mn	3.000	5.60
Cr	0.380	10.20
Ni	0.070	2.10
SiO_2	5.300	8.20
Al_2O_3	0.370	0.69
CaO	4.800	3.10
Na_2O	0.830	1.34
C	0.440	0.29
S	0.360	0.23
F	0.900	3.30
Cl	1.000	0.30

Flame Reactor: 'We're Doing Selective Reduction'

In Monaca, Pa., dust from electric furnaces is being charged into the Flame Reactor of Horsehead Resource Development Co., Inc.

The steps taken help explain why it has proved so difficult to come up with a satisfactory disposal method for arc furnace dust.

The difficulty centers on lead, cadmium and chromium, which are classified as hazardous and which accompany the growing quantities of zinc in the scrap used by furnaces.

All four of these scrap constituents wind up in the dust collected by baghouses.

To retrieve the zinc while converting the three hazardous elements into useable or disposable form, the Flame Reactor starts with a mixture of coal or coke fines and oxygen enriched air. This produces a flame that is hot—around 2,000°C.—and rich in CO.

"That expands into the downstream reactor section and we inject electric furnace dust in whatever form it's recovered," said John F. Pusateri, director of Flame Reactor operations and development for Horsehead Resource.

"The volatile metal oxides are reduced and fume off as vapor," said Mr. Pusateri.

A portion of the hazardous material travels with the zinc oxide. "Through the zinc smelting process, we'll concentrate lead and cadmium, usually in sinter fumes," he explained.

The lead fraction can be leached to remove the zinc, leaving a cake that is sold to lead smelters. The zinc oxide is refined in a conventional smelter. (Horsehead has combined New Jersey Zinc and the zinc portion of St. Joe Minerals into Zinc Corp. of America.)

The retrieval of useable elements leaves a slag residue containing 40 to 50 pct iron and most of the original chromium.

"In our process, we're doing selective reduction," Mr. Pusateri continued. "We're not reducing the iron (to a metallic state). We're keeping it in the slag as an oxide partly because we can't justify expending the energy to reduce iron. It also provides a convenient matrix to tie up the chrome."

Under a contract with the Center for Metals Production in Pittsburgh, Horsehead Resource has developed data aimed at having the Flame Reactor slag removed from EPA's hazardous material list. Another test program was conducted under a Bureau of Mines contract.

The plant at Monaca is classed as a demonstration unit, but its capacity of 15,000 to 20,000 tons a year could be suitable for some commercial situations. Mr. Pusateri estimated that a 20,000-ton commercial plant would cost between $2 million and $2.5 million.

Horsehead plans to own and operate Flame Reactor plants, processing dust on a toll basis. The company has site studies going in the Midwest and the Southeast. The metal content of the dust enters into the economics, but Mr. Pusateri doesn't rule out processing material with as little as 5 pct zinc. It's now costing steelmakers as much as $200 a ton to get rid of furnace dust, he noted, so there are large amounts that can be applied against processing costs.

Mr. Pusateri is optimistic about the outlook for the Flame Reactor. He feels the Flame Reactor has the advantage of being tied in with existing zinc smelting operations. "That's one of the reasons we didn't go to condensed zinc. It's difficult to operate condensers every day."

Two of the plasma processes for electric furnace dust do go to metallic zinc. This involves reducing and vaporizing the zinc and then condensing very rapidly to a liquid.

The Flame Reactor condenses the vapor to a solid oxide. This can be refined in the 150,000 tons of pyrometallurgical capacity at the New Jersey Zinc plants in Monaca and in Bartlesville, Okla.

By George J. McManus

will process dust with a zinc content of 10 pct or less."

Catch-22

Mr. Goodwill of CMP said the government's dust regulation creates its own version of a "Catch-22." Currently, the thermal process produces zinc oxide which is then converted to the base metal, or sold to chemical firms for other uses. "There is actually a relatively limited market for zinc oxide and consequently," a stable market price. If more thermal facilities came on stream, and more are needed to comply with the EPA disposal edict, "a lot more zinc oxide would be produced and this, in turn, would drive its price down," he said.

Mr. Unger disagrees, noting that Horsehead's sister firm, Zinc Corp. of America, has the flexibility of distilling the dust residue into nearly pure zinc oxide, or the elemental metal, based on prevailing market conditions. Zinc Corp. in Monaca, Pa., and Horsehead Resource Development, are divisions of the New York-based Horsehead Industries, Inc.

Officials with several EAF steel producers told *Iron Age* they believe construction of regional thermal reprocessing plants would at least solve the dilemma of limited capacity and inordinately high transportation costs. However, none of the firms, or industry trade groups, are building these regional plants at this time.

Mr. Unger told *Iron Age* his firm "is looking at putting a (thermal reprocessing) plants in Texas and in the Southeast, possibly in Georgia."

EPA Testing Process

Meanwhile, David Boltz, a Bethlehem waste management manager, alleged the EPA in essence skewed its own test procedures in deciding the thermal process was the best available technology, while ruling out chemical stabilization. "In its testing of the thermal (process), the EPA threw out several 'data points' so that it only had three remaining ones on

which to base" its decision that thermal was the best, he said. "We also believe the agency threw out a lot of data (supporting) stabilization as the best technology and illegally used the toxic characteristics leaching procedure" to disqualify stabilization as the preferred disposal technology.

Responding to these allegations, James Berlow, chief of the EPA's treatment technology section, acknowledged that some test parameters were tossed out in the EPA's evaluation of Horsehead's technology, but only after determining the facility was not "yet operating under its own (optimum) operating conditions."

Mr. Boltz noted that Bethlehem, whose Johnstown and Steelton, Pa., EAF facilities produce 52,000 tons of dust annually, petitioned the EPA in 1986 to delist, or exempt this effluent as a hazardous waste, asserting when chemically stabilized, it poses no environmental hazard. Although the agency has yet to act on this and several other such petitions, in late April it did grant a similar one filed last year by Roanoke Electric Steel Corp., Roanoke, Va.

Scott Maid, another EPA official, said the agency "will be processing the delisting petitions as soon as we can." The agency, though, apparently is not about to issue wholesale exemptions. Using the RCRA law as a guide, Mr. Berlow said its primary intent is to reduce the dangers posed by hazardous wastes in the way that reduces its bulk.

"In the case of EAF dust," he said, "we see these requirements as minimizing the waste and also recovery of (heavy metals) as most beneficial and a lesser threat to the environment than land disposal."

Given the fact that stabilization can cost about half as much as thermal processing, the National Steel Producers Association's Mr. Collins said the EPA should grant some exemptions given the paucity of thermal facilities and landfills that can legally accept stabilized EAF dust. "This would only make sense for companies that are far away from treatment centers to be able to dispose of the dust on-site, so long as these (dumps) pass leachate tests," he said.

But other industry officials, even those who favor the stabilization method, concede the EPA is not totally off-base in choosing thermal over fixation technology for EAF dust neutralization.

"Chemical fixation probably violates the spirit of the (RCRA) law because it increases the volume" of disposed wastes, said Mr. Dulle. The CMP's Mr. Goodwill added that with "fixation there is the potential for some leaching further on" in time.

'Plainly put, the (proposed EAF dust regulation) goes in the wrong direction. It will force higher costs on EAF producers.'

Dust On-Site

Steel firms using the electric arc furnaces hardly are rushing to build new landfills, or upgrading existing ones, that would comply with the tougher EPA standards.

Typically, it can cost about $3 million for a conversion or new construction. Even firms such as Chaparrel Steel Co., Midlothian, Texas, which built a new, state-of-the-art double-lined leachate collection and groundwater monitoring fill, recognizes hazards inherent in maintaining such facilities.

"We preferred to build the (new) site on-site rather than shipping off the dust" for processing, said Chris Avent, a special projects manager with Chaparrel Steel.

"If the dust is on-site we can keep an eye on it and know what's happening to it. After all, it is a hazardous waste and if it goes into someone else's landfill and leaches out we remain liable," he said.

Mr. Dulle, moreover, noted that should a chemical waste problem emerge in the distant future, and the last handler, such as a landfill operator, has gone out of business, the liability would go back to the original dust generator.

If these uncertainties were not enough to cloud the the future of EAF dust disposal, and perhaps the industry itself, new technological wrinkles have emerged to further muddy the waters. Plasma reduction units, like the handful now operating in Europe, could neutralize heavy metal EAF dust hazards while producing elemental zinc as a by-product.

The EPA's proposed regulations would permit the use of any reduction process that meets its general guidelines for waste neutralization. Although the plasma reactor might be an alternative to Waelz kiln technology, CMP's Mr. Goodwill said he knows of no firm that has made a commitment to build such a facility. Horsehead, said Mr. Unger, investigated this technology "but believes our own approach is the best."

Whether this is the best approach, at least several steel industry officials assert the EPA's one-technology approach ultimately will hurt American steel producers. "Plainly put, the (proposed EAF dust regulation) goes in the wrong direction. It will force higher costs on EAF producers that they will have to absorb, where their foreign competitors will not," said Bethlehem's Mr. Boltz.

The EPA's Mr. Berlow insists the agency will issue its final regulation by August 8 in order to avoid the underlying environmental law's soft hammer. "Under RCRA's 1984 amendments, if we fail to meet this deadline, then all waste is banned from landfills, except those ...facilities that are double-lined, have groundwater monitors and leachate collection systems. And if we fail to act by May 1990," he added, "all disposal is banned from landfills entirely.

"Our intention is to meet the 8/8/88 deadline."

By Jim Ostroff
of Fairchild News Service

1ST QUARTER EARNINGS
PROFITS, PROFITS, PROFITS

Earnings of some of the major steel mills doubled and tripled in the first quarter, while the nonferrous producers posted even higher gains in income.

Good times returned for the steel industry in the first quarter of 1988.

Earnings of major mills doubled and tripled. Three steel companies earned more than 7 pct on sales. Another three had margins over 6 pct.

There was, moreover, every reason to look for sustained prosperity. Going into May, mill orders indicated that the second quarter would see shipments at least equal to the 21 million tons of the first quarter. No real decline has been indicated for the third quarter.

"We see no letup in demand nor softening of prices for steel products," said David M. Roderick, chairman of USX Corp. Mr. Roderick expected "a continued strong financial performance for the remainder of the year."

Reversing the pattern of recent years, the steel segment of USX had an operating profit—$167 million—that was nearly double the earnings of oil and gas operations.

"The impressive results in steel are due to reduced costs, strong demand, and modestly higher prices," said Mr. Roderick. "We're finally putting to rest the image of a rust-belt industry."

In the first quarter, Bethlehem Steel Corp. shed the image of a company on the brink of financial failure. Benefitting from the long awaited revival of plates and structurals, Bethlehem's steel segment boosted operating income from $49 million in the first quarter of 1987 to $98 million in the first quarter of 1988.

In addition to benefitting from current good business, steel companies are getting some substantial compensation from their long depression. Bethlehem received an investment tax credit refund of

$140 million in March. Only $10 million of this was included in first quarter earnings. The credit was more than offset by a charge of $15 million for a coal mine fire and by a loss of $17 million on marine operations.

The $62 million earned by Inland Steel Industries in the first quarter was up only about 2 pct from 1987. In last year's first quarter, however, Inland had an investment credit refund of $50 million. The 1988 refund was a little under $4.2 million. Operating income on steel production rose from $13.6 million in 1987 to $52.8 million in the first quarter of 1988.

One sign of the times was restoration by Inland of regular dividend payments. "Inland Steel Industries enjoys its best financial posture in several years," said Frank W. Luerssen, chairman. "Our debt to capital ratio is down to 27.8 pct. Our controllable costs continue their downward course."

For financial reporting purposes, Inland has used up its loss carry-forwards, but the company actually has another $600 million in past losses that can be applied against federal income taxes.

National Steel Corp. went from a loss of $5.6 million in the first quarter of 1987 to a profit of $13.6 million in the first quarter of 1988. The profit swing was really bigger because National had an investment credit refund of $18 million in the 1987 quarter.

National's shipments in the first quarter were up 10 pct from the first quarter of 1987. This was of interest because the company makes only sheet products and these were supposed to lag this year. Instead, the automotive market has held up well, and general sales have improved.

"Demand for flat-rolled products was very strong throughout the quarter," said Howard M. Love, chairman of National. "That strength is continuing in the second quarter, further boosted by increased automotive build schedules. At this time, bookings in the early part of the third quarter also look good, especially for the hot-rolled product line."

National's relatively thin profit margin in the first quarter suggested that the year-long contracts of auto companies were still preventing significant price relief for a major portion of the sheet tonnage.

Anyway you look at it, Weirton Steel Corp. had a good first quarter. If you look at the $20 million for profit sharing as a cost, Weirton earned a respectable 5.5 pct on sales. If you take the full after-tax income of $40 million, the company had a sensational 11 pct return on sales.

The employee's share of Weirton's profit has risen to 50 pct. This rise from one-third was made

(Sales and earnings table appears on p. 30; story continues on p. 32.)

STEEL: PROFITS KEEP ROLLING IN

FIRST QUARTER PROFIT REPORT—1988 (In Millions of Dollars)

		EARNINGS			SALES		
	E/S	1st Q 1988	1st Q 1987	Pct Change	1st Q 1988	1st Q 1987	Pct Change
USX	3.9	$157.0	($72.0)	—	$3,997.0	$2,790.0	+43.0
LTV	7.1	163.9	129.6	+26.4	1,881.1	1,908.1	-1.5
BETHLEHEM	6.4	85.4	25.6	+234.0	1,328.7	1,130.7	+17.5
INLAND	6.7	63.6	62.5	+1.8	966.5	842.6	+15.0
ARMCO	5.8	44.0	52.5	-16.2	748.9	727.8	2.9
NATIONAL	2.5	13.6	(5.6)	—	618.2	537.4	+15.0
TOTAL	5.5	527.5	192.6	+174.0	9,540.4	7,936.6	+20.2
WEIRTON	11.0	40.4	27.9	+44.8	364.2	346.2	+5.1
ALLEG. LUD.	7.4	20.4	12.0	+70.0	274.5	205.6	+34.0
WHEEL-PGH	18.8	49.6	(115.7)	—	263.0	255.6	+2.8
NUCOR	7.0	17.2	10.8	+58.6	245.2	186.8	+31.0
CYCLOPS	2.6	6.3	—	—	241.0	—	—
CARPENTER	1.8	2.1	(0.8)	—	147.5	125.3	17.7
LUKENS	4.8	6.7	2.9	+130.0	139.0	110.6	+26.0
FLORIDA	5.2	5.6	3.7	+51.0	107.2	88.7	+21.0
ACME	4.3	4.0	2.9	+38.0	93.6	74.4	+25.8
BIRMINGHAM	6.8	5.8	2.4	+145.0	86.4	59.1	+46.0
CF&I	4.7	4.1	(5.0)	—	86.8	55.4	+56.7
CSC	—	(3.4)	1.7	—	55.4	46.8	+18.3
OREGON	10.1	4.5	2.1	+114.0	44.4	28.3	+57.0
EASTMET	0.2	0.1	0.1	—	35.4	26.8	+32.0
NEW JERSEY	3.4	0.7	4.1	-83.0	20.5	31.7	-35.0

( ) Indicates a loss

NONFERROUS: DOUBLE-DIGIT GAINS

FIRST QUARTER PROFIT REPORT—1988 (In Millions of Dollars)

	EARNINGS			SALES		
	1st Q 1988	1st Q 1987	Pct Change	1st Q 1988	1st Q 1987	Pct Change
ALCAN	$175.0	$71.0	+146.0	$1,950.0	$1,523.0	+28.0
ALCOA	178.7	49.5	+261.0	2,123.9	1,793.1	+18.4
AMAX	82.3	120.0	-31.0	917.0	765.0	+20.0
ASARCO	46.2	(21.3)	—	446.8	273.7	+50.0
BATTLE MOUNTAIN	15.8	8.8	+80.0	37.1	24.5	+51.0
BRUSH WELLMAN	7.9	6.5	+21.5	90.0	73.0	+23.3
COMINCO	31.9	4.4	+625.0	365.5	297.9	+23.0
ECHO BAY	10.9	8.1	+34.6	60.0	43.4	+38.3
FALCONBRIDGE*	35.2	28.0	+25.7	425.9	257.6	+65.3
HANDY & HARMAN	2.7	1.5	+80.0	165.5	141.5	+17.0
HECLA MINING	4.9	(3.5)	—	21.9	15.3	+43.1
INCO	125.9	(5.0)	—	676.0	381.0	+77.0
INSPIRATION	(5.0)	(5.7)	—	286.7	246.9	+16.1
KAISERTECH	36.3	(31.1)	—	520.0	488.2	+39.4
LAC MINERALS	8.0	3.6	+122.0	45.0	45.9	—
MAGMA COPPER	7.3	(0.1)	—	147.5	125.4	+17.6
NORANDA*	128.7	29.5	+336.0	2,056.1	1,654.6	+24.3
OLIN	29.2	24.5	+19.2	567.2	472.7	+20.0
PHELPS DODGE	92.5	16.8	+451.0	568.9	372.9	+52.6
PINE POINT MINES*	9.6	4.4	+118.0	35.7	25.5	+40.0
REYNOLDS METALS	70.1	25.9	+159.0	1,176.1	943.8	+24.6
RIO ALGOM*	26.4	16.2	+63.0	464.9	363.9	+27.8
SHERRITT GORDON	17.4	(3.0)	—	113.9	62.7	+81.7
VULCAN MATERIALS	23.6	16.6	+43.0	202.7	168.9	+20.0

( ) Indicates a loss * Canadian funds

in the expectation that the company's net worth will reach the $250 million level that triggers an increase.

The mini-mills did well in the second quarter. Nucor Corp. had a 7 pct return on sales and a 15.2 pct return on equity. Nucor's steel shipments were up 20 pct from the first quarter of 1987; the company's steel backlog was triple that of a year earlier.

Nucor's steel deck sales of 26,000 tons in the first quarter were down from 33,000 tons in the first quarter of 1987. This tonnage is of interest because the company's decking line will provide one outlet for the 800,000-ton sheet mill being built at Crawfordsville, Ind. Coming on stream this summer is Nucor's 650,000-ton structural mill in Arkansas.

Birmingham Steel Corp. earned 6.8 pct on sales of $86.4 million in the first quarter of 1988. Birmingham's sales were up 46 pct and its earnings 158 pct.

The stainless flat-rolled business continued to boom. Allegheny Ludlum Steel Corp. earned a 7.4 pct on sales in the first quarter of 1988. "In addition to continuing strength in stainless steel orders from consumer durable markets, we are particularly heartened by the strong resurgence in orders from the capital goods markets for our silicon electrical steels and stainless steel plate products," said Richard P. Simmons, chairman of Allegheny Ludlum.

The one soft spot for steel was the specialty bar business. A loss was reported by CSC, which operates the Warren, Ohio, plant that used to belong to Copperweld Steel. Carpenter Technology Corp. had a good profit recovery, but its margin was below the levels of past banner years.

Nonferrous

Nonferrous metals producers racked up higher sales and sharply higher profits in the first three months of 1988, continuing the pattern that arose in early 1987 and likely will continue through this year.

Aluminum Co. of America (Alcoa) posted a whopping 261 pct gain in earnings for the first three months of the year—$178.7 million compared to $49.5 million for the same period of 1987.

Similarly, Canadian-based Alcan Aluminium, Ltd., reported record profits and sales for the first three months of this year. Alcan's net income soared to $175 million compared to $71 million for the year-earlier quarter.

David M. Culver, Alcan chairman and CEO, said the company's record quarterly performance reflected the current strength of the metal's price and the company's cost-cutting efforts.

Even the changes in the nickel market in 1987,... cannot be compared to the events of the first quarter of this year

KaiserTech, Ltd., replaced the $31.1 million in red ink reported for the first quarter of 1987 with $36.3 million in profits this year, while Reynolds Metals Co. posted earnings of $70.1 million for the first three months of 1988 compared to $25.9 million for the same period of 1987.

"Currently, Reynolds and the worldwide aluminum industry are operating in a very favorable climate," William O. Bourke, Reynolds chairman and CEO, told security analysts in New York last month.

Producer inventories are low, the industry's operating capacity is at its highest level in nearly 20 years and metal supplies are tight because of strong demand in virtually all of the industry's major markets.

"Ingot prices have soared recently to levels well above 1987 averages. Yet, for the longer term, we expect more stability at levels that will be both profitable and competitive with other materials.

"Prices for many semi-fabricated products, which usually trail ingot price changes by two to six months, also have increased since January reflecting higher metal costs," he added.

Copper likewise continued its rebound from the slim profits of the previous year and the rivers of red ink of earlier periods. Phelps Dodge Corp., the nation's largest producer, reported a fivefold gain in net income for the first quarter, to $92.5 million from $16.8 million. Sales were up from $372.9 million to $568.9 million in the first three months of this year.

Asarco, Inc. reversed the pattern from the previous year, reporting profits of $46.2 million for the first quarter compared to a loss of $21.3 million for the year earlier period.

Much of the copper producers' gains stemmed from the red metal's price recovery. The same could easily be said about the nickel industry's rebound in the first quarter.

Even Donald J. Phillips, Inco chairman and CEO, in his speech to the company's shareholders in April, described the rapid rise of nickel prices in March as "unprecedented" in the industry's history.

"Even the changes that occurred in the nickel market in 1987, as dramatic as they were, cannot be compared to the fast moving events of the first quarter of this year, which were unprecedented in the history of the nickel industry....

"February's average price of $3.94 (per pound) started to cause some concern in the market place and this concern was more than justified by the escalation in March. During that month, the spot price of nickel rose from $4 to $5... to $6... to $7... to $8... to $9... and finally to $10.84 on March 28. We were clearly in a period of nickel shortage and the LME, as a commodity exchange, was reacting to it."

By George J. McManus and Michael Marley

PRICE & PRODUCTION DATA

(Effective May 2, 1988)

Steel production by districts, thousands of tons (000 omitted)

	Last Week	Two Weeks Ago	Month Ago	Year Ago
Northeast Coast	276	294	289	245
Pittsburgh	204	198	195	192
Youngstown	127	131	112	122
Lake Erie	170	151	153	137
Detroit	171	169	168	155
Chicago	559	497	546	493
Midwest	203	203	183	207
Southern	232	225	223	192
Western	104	102	103	56
U.S. Production	2,046	1,970	1,972	1,799

Source: American Iron & Steel Institute

Lake Superior Ore Prices

51.50% Fe Natural delivered lower Lake ports unless otherwise stated. Rail transportation, handling and unloading may be charged to buyer. Coarse ore 80¢ premium.

Pellets (per iron unit natural) ..... gross-ton 37.344*
Pellets (per iron unit natural) ..... gross-ton 46.84-59.4**
Pellets (per iron unit natural) ..... gross-ton 72.45-86.9***
Mesabi, regular-unscreened ..... gross-ton 32.53
Mesabi, non-bessemer ..... gross-ton 30.03-31.53

*37.344¢—U.S. Steel, 5/20/87, FOB Mount Iron, Minn. **46.84¢—Inland Steel Mining, 1/1/87. 58.0¢—Mineral Services, 8/13/85. 59.4¢—Pickands Mather, 8/1/85, delivered hold of vessel, upper Lake ports. ***72.45¢—Cleveland-Cliffs, 12/30/86; Oglebay Norton, 3/1/87. 86.9¢—Hanna Mining, 2/26/82.

STEEL PRODUCTION, COMPOSITE PRICES

(Effective May 2, 1988)

U.S. Steel Production	Last Week	Two Weeks Ago	To Date 1988	To Date 1987
Net tons, in thousands	2,046	1,970	33,653	26,372
Capability Utilization Rate	95.5	91.9	90.7	71.4

Composite Prices	This Week	Week Ago	Month Ago	Year Ago
Finished Steel Base* (¢/lb.—eff. 4/3/88)	24.333	24.333	24.333	25.236
Pig Iron** (Net ton= 2000 lbs.)	$213.00	$213.00	$213.00	$213.00
Scrap No. 1 hvy.*** (Gross ton=2240 lbs.)	$105.17	$108.83	$108.83	$ 73.50
No. 2 bundles	$ 72.17	$ 72.50	$ 73.83	$ 50.83

Scrap Comparison (Gross Ton)				
No. 1 steel, Pittsburgh	$107.50	$112.50	$112.50	$ 79.50
No. 1 steel, Philadelphia	96.50	96.50	96.50	68.50
No. 1 steel, Chicago	111.50	117.50	117.50	72.50
No. 1 bundles, Detroit	117.50	127.50	127.50	78.50
Low Phos., Youngstown	120.50	128.50	128.50	79.50
No. 1 mach'y cast., Pgh	98.50	98.50	100.50	81.50
No. 1 mach'y cast., Phila.	111.50	111.50	111.50	93.50
No. 1 mach'y cast., Chi	128.50	134.50	134.50	93.50

*Finished Steel Composite: Weighted index of steel bars, structurals, plates, rails, hot rolled and cold rolled sheets.
**Pig Iron Composite: Based on average prices for basic and foundry pig iron at representative producing points within the U.S.
***Steel Scrap Composite: Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

NONFERROUS PRICES

(Effective May 2, 1988) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated.

Primary Metal Prices

(cents per lb.)	current price	last price	date of change
Aluminum (LME)	98.00	94.00	4/29/88
Copper (C)	100.00	98.00	5/2/88
Lead	34.00	37.00	2/8/88
Magnesium Ingot	153.00	148.00	12/9/85
Nickel (LME)	607.00	693.00	4/29/88
Zinc	55.00	52.00	4/18/88

ALUMINUM: Avg. for last week & previous week. COPPER (C)=cathode. LEAD: common grade. MAGNESIUM: 99.8% pig, delivered. NICKEL: Avg. for last week & previous week. ZINC: high grade.

Antimony, American Laredo, Texas $2.00
Beryllium-aluminum 5% Be, per lb. contained Be $260.00
Beryllium-copper strip No. 25, per lb.Be $8.00
Beryllium powder SP200F, per lb. $244.00
Cadmium, ton lots $1.50
Calcium, ton lots, crown $3.92
Chromium, 99.5% electro $4.62
Cobalt, 99%, cathode $12.50
Gold, per troy oz. $446.30
Indium, per troy oz. $9.95
Iridium, per troy oz. $325.00
Magnesium sticks, 10,000 lbs. $2.12
Mercury, per 76-lb., f.o.b. N.Y. $348.00
Molybdenum, lb. tech. moly oxides, 20 lb. MO can $3.45
Palladium, per troy oz. $122.00
Platinum, per troy oz. $515.00
Rhodium, per troy oz. $1,240.00
Silver ingots, per troy oz. $6.42
Titanium sponge, melt grade $4.00
Tungsten powder, hyd red $9.53-9.85
Vanadium $6.00
Zirconium sponge $11.20-17.00
(Per lb. unless otherwise noted)

Straits Tin Price

(U.S. cents per lb. EX-SMELTER, based on daily market in Kuala Lumpur in Malaysian dollars per kilo.)

Apr. 25—305.00 Apr. 28—302.00
Apr. 26—303.00 Apr. 29—301.00
Apr. 27—303.00

Scrap Prices

Brass Mill Scrap

(Cents per lb.; over 20,000 lbs. add 1¢ per lb.)

	Solids	Turnings
Copper	82	77
Yellow brass	70½	69½
Red brass	65½	61½
Comm. bronze	67	62
Mang. bronze	47	46
Free cutting rod ends	62½	61½

Custom Smelters Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire 81
No. 2 copper wire 71
Light copper 65

Ingot Makers Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire 72
No. 2 copper wire 63
Light copper 56
No. 1 composition 55
No. 1 comp. turnings 55
Hvy. yellow brass solids 39
Hvy. yellow brass turnings 33
Radiators 36

Aluminum

New mixed clips	62	— 63
Old sheet	51	— 52
Old cast	53	— 54
Clean dry borings	43	— 44

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Aluminum

Segregated clippings	54	— 55
Mixed I.C. clips	53	— 54
Old sheets and cast	44	— 45
Borings and turnings	36	— 37
Duraluminum clippings	45	— 46

Copper and Brass

No. 1 copper wire	67	— 69
No. 2 copper wire	57	— 58
Light copper	51	— 52
Radiators	36	— 37
No. 1 composition	55	— 56
No. 1 composition turnings	51	— 52
Cocks and faucets	45	— 46
Clean heavy yellow brass	41	— 42
Brass pipe	49	— 50
New soft brass clippings	61	— 62

Lead

Heavy soft lead	12	— 13
Whole batteries	2	— 3
Type metal	21	— 22
Electrotype	13	— 14

Nickel

Nickel solids	380	—390
Nickel rod ends	373	—383
Nickel sheets, clips	373	—383
Nickel turnings	209	—229

Zinc

New zinc clippings	18	— 19
Old diecast zinc	14	— 15

EFFECTIVE MAY 2, 1988

(Effective May 2, 1988) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated. Prices are the opinions of Iron Age editors and correspondents, based on contacts with dealers, brokers, generators and users in the industry on the effective date listed above.

Ferrous Scrap Prices

Pittsburgh

No. 1 hvy. melting	$ 107.00 to	$ 108.00
No. 2 hvy. melting	97.00 to	98.00
No. 1 dealer bundles	131.00 to	132.00
No. 1 factory bundles (auto)	146.00 to	147.00
No. 2 bundles	64.00 to	65.00
No. 1 busheling	133.00 to	134.00
Machine shop turnings	23.00 to	24.00
Shoveling turnings	69.00 to	70.00
Cast iron borings	68.00 to	69.00
Low phos. punchings plate	146.00 to	147.00
Heavy turnings	97.00 to	98.00
No. 1 RR hvy. melting	130.00 to	131.00
Rails, 2 ft. and under	155.00 to	156.00
Scrap rails, random lgth.	142.00 to	143.00
RR specialties	143.00 to	144.00
No. 1 machinery cast	98.00 to	99.00
Cupola cast	90.00 to	91.00
Heavy breakable cast	40.00 to	41.00
Stainless		
18-8 bundles and solids	1,190.00 to	1,200.00
18-8 turnings	1,090.00 to	1,100.00

Chicago

No. 1 hvy. melting	$ 111.00 to	$ 112.00
No. 2 hvy. melting	107.00 to	108.00
No. 1 dealer bundles	123.00 to	124.00
No. 1 factory bundles (auto)	123.00 to	124.00
No. 2 dealer bundles	85.00 to	86.00
No. 1 busheling	124.00 to	125.00
Shredder scrap	124.00 to	125.00
Machine shop turnings	55.00 to	56.00
Mixed borings and turnings	47.00 to	48.00
Shoveling turnings	64.00 to	65.00
Cast iron borings	69.00 to	70.00
Low phos. forge crop	154.00 to	155.00
Low phos. punchings plate 1/4 in. and heavier	170.00 to	171.00
Low phos. 2 ft. and under	163.00 to	164.00
No. 1 RR hvy. melting	117.00 to	118.00
Scrap rails random lgth	140.00 to	141.00
Reroller rails	154.00 to	155.00
Rails, 2 ft. and under	164.00 to	165.00
RR couplers and knuckles	133.00 to	134.00
RR car axles	158.00 to	159.00
No. 1 machinery cast	128.00 to	129.00
Cupola cast	108.00 to	109.00
Stove plate	128.00 to	129.00
Steel car wheels	144.00 to	145.00
Stainless		
18-8 bundles and solids	1,150.00 to	1,160.00
18-8 turnings	1,000.00 to	1,010.00
430 bundles and solids	240.00 to	250.00
430 turnings	155.00 to	165.00

Philadelphia

No. 1 hvy. melting	$ 95.00 to	$ 98.00
No. 2 hvy. melting	85.00 to	88.00
No. 1 dealer bundles	134.00 to	137.00
No. 2 dealer bundles	65.00 to	68.00
No. 1 busheling	127.00 to	130.00
Shredder scrap	120.00 to	123.00
Machine shop turnings	29.00 to	32.00
Mixed borings and turnings	29.00 to	32.00
Shoveling turnings	50.00 to	53.00
Low phos. 5 ft. and under	117.00 to	120.00
Low phos. 2 ft. punchings	140.00 to	143.00
Electric furnace bundles	134.00 to	137.00
RR specialties	124.00 to	127.00
Rails, 2 ft. and under	145.00 to	148.00
Cupola cast	99.00 to	102.00
Heavy breakable cast	52.00 to	55.00
No. 1 machinery cast	110.00 to	113.00

Detroit

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 73.00 to	$ 74.00
No. 2 hvy. melting	71.00 to	72.00
No. 1 dealer bundles	117.00 to	118.00
No. 2 bundles	52.00 to	53.00
No. 1 busheling	115.00 to	116.00
Drop forge flashings	67.00 to	68.00
Machine shop turnings	51.00 to	52.00
Mixed borings and turnings	23.00 to	24.00
Shoveling turnings	51.00 to	52.00
Cast iron borings	57.00 to	58.00
Heavy breakable cast	41.00 to	42.00
Mixed cupola cast	58.00 to	59.00
Automobile cast	80.00 to	81.00
Stainless		
18-8 bundles and solids	1,090.00 to	1,100.00
18-8 turnings	700.00 to	710.00
430 bundles and solids	235.00 to	245.00

Youngstown

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 95.00 to	$ 96.00
No. 2 hvy. melting	86.00 to	87.00
No. 1 dealer bundles	118.00 to	119.00
No. 2 dealer bundles	55.00 to	56.00
Machine shop turnings	45.00 to	46.00
Shoveling turnings	45.00 to	46.00
Low phos. plate	120.00 to	121.00
Electric furnace bundles	121.00 to	122.00
Galvanized bundles	119.00 to	120.00

Cleveland

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 89.00 to	$ 90.00
No. 2 hvy. melting	79.00 to	80.00
No. 1 dealer bundles	118.00 to	119.00
No. 1 factory bundles	122.00 to	123.00
No. 2 bundles	49.00 to	50.00
No. 1 busheling	114.00 to	115.00
Machine shop turnings	48.00 to	49.00
Shoveling turnings	48.00 to	49.00
Cast iron borings	48.00 to	49.00
Cut structural & plates, 5 ft. and under	103.00 to	104.00
Cut structural & plates, 2 ft. and under	130.00 to	131.00
Low phos. punchings plate	136.00 to	137.00
Foundry steel, 2 ft. & under	81.00 to	82.00
No. 1 RR hvy. melting	96.00 to	97.00
Rails, 2 ft. and under	145.00 to	146.00
Rails, 18 in. and under	147.00 to	148.00
No. 1 machinery cast	84.00 to	85.00
Mixed cast	49.00 to	50.00
Stainless		
18-8 bundles	1,095.00 to	1,105.00
18-8 turnings	705.00 to	715.00
430 bundles	240.00 to	250.00

Buffalo

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 85.00 to	$ 86.00
No. 2 hvy. melting	77.00 to	78.00
No. 1 busheling	115.00 to	116.00
No. 1 dealer bundles	115.00 to	116.00
No. 2 bundles	43.00 to	44.00
Machine shop turnings	26.00 to	27.00
Mixed borings and turnings	26.00 to	27.00
Shoveling turnings	32.00 to	33.00
Cast iron borings	34.00 to	35.00
Low phos. plate	116.00 to	117.00
Structural and plate, 2 ft. and under	130.00 to	131.00
Rails, 2 ft. and under	134.00 to	135.00
Scrap rails, random lgth.	109.00 to	110.00
No. 1 machinery cast	104.00 to	105.00
No. 1 cupola cast	87.00 to	88.00

St. Louis

No. 1 hvy. melting	$ 94.00 to	$ 95.00
No. 2 hvy. melting	74.00 to	75.00
No. 1 busheling	119.00 to	120.00
No. 1 dealer bundles	122.00 to	123.00
No. 2 bundles	77.00 to	78.00
Machine shop turnings	49.00 to	50.00
Shoveling turnings	53.00 to	54.00
Cast iron borings	57.00 to	58.00
No. 1 RR hvy. melting	113.00 to	114.00
Rails, random length	113.00 to	114.00
Rails, 5 ft. and under	123.00 to	124.00
Plate and structural, 5 ft. and under	113.00 to	114.00
Cupola cast	89.00 to	90.00
Heavy breakable cast	43.00 to	44.00
Stove plate	112.00 to	113.00
Steel car wheels	122.00 to	123.00
Rerolling rails	130.00 to	131.00
Unstripped motor blocks	66.00 to	67.00

Birmingham

No. 1 hvy. melting	$ 94.00 to	$ 95.00
No. 2 hvy. melting	90.00 to	91.00
No. 1 dealer bundles	99.00 to	100.00
No. 2 bundles	77.00 to	78.00
No. 1 busheling	99.00 to	100.00
Shredder scrap	119.00 to	120.00
Machine shop turnings	40.00 to	41.00
Shoveling turnings	53.00 to	54.00
Cast iron borings	34.00 to	35.00
Electric furnace bundles	84.00 to	85.00
Elec. furnace, 3 ft. & under	99.00 to	100.00
Structural and plate, 2 ft.	134.00 to	135.00
Structural and plate, 4 ft.	124.00 to	125.00
No. 1 RR hvy. melting	124.00 to	125.00
Scrap rails, random lgth.	121.00 to	122.00
Rails, 2 ft. and under	145.00 to	146.00
Angles and splice bars	124.00 to	125.00
No. 1 cupola cast	101.00 to	102.00
Unstripped motor blocks	93.00 to	94.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 86.00 to	$ 87.00
No. 2 hvy. melting	81.00 to	82.00
No. 1 dealer bundles	102.00 to	103.00
No. 2 bundles	55.00 to	56.00
No. 1 busheling	107.00 to	108.00
Machine shop turnings	28.00 to	29.00
Shoveling turnings	37.00 to	38.00
Cast iron borings	40.00 to	41.00
Low phos. 18 in. and under	123.00 to	124.00
Rails, random length	100.00 to	101.00
Rails, 2 ft. and under	123.00 to	124.00
No. 1 cupola cast	89.00 to	90.00
Heavy breakable cast	54.00 to	55.00
Drop broken cast	95.00 to	96.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 70.00 to	$ 72.00
No. 2 hvy. melting	62.00 to	63.00
No. 2 dealer bundles	35.00 to	37.00
Mixed borings and turnings	10.00 to	11.00
Shoveling turnings	10.00 to	12.00
Clean cast, chem. borings	37.00 to	38.00
No. 1 machinery cast	80.00 to	81.00
Mixed yard cast	53.00 to	54.00
Heavy breakable cast	17.00 to	19.00
Stainless		
18-8 prepared solids	870.00 to	890.00
18-8 turnings	540.00 to	560.00
430 prepared solids	230.00 to	240.00
430 solids	235.00 to	245.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 70.00 to	$ 72.00
No. 2 hvy. melting	60.00 to	62.00
No. 1 dealer bundles	88.00 to	90.00
No. 2 bundles	33.00 to	35.00
No. 1 busheling	83.00 to	85.00
Shredder scrap	78.00 to	80.00
Machine shop turnings	18.00 to	20.00
Shoveling turnings	23.00 to	25.00
No. 1 machinery cast	85.00 to	87.00
Mixed cupola cast	44.00 to	46.00
Heavy breakable cast	22.00 to	24.00

San Francisco

No. 1 hvy. melting	$ 63.00 to	$ 65.00
No. 2 hvy. melting	57.00 to	59.00
No. 1 dealer bundles	55.00 to	57.00
No. 2 dealer bundles	43.00 to	44.00
Machine shop turnings	15.00 to	16.00
Cast iron borings	15.00 to	16.00
No. 1 cupola cast	87.00 to	89.00

Los Angeles

No. 1 hvy. melting	$ 73.00 to	$ 75.00
No. 2 hvy. melting	67.00 to	69.00
No. 1 dealer bundles	65.00 to	67.00
No. 2 dealer bundles	47.00 to	49.00
Machine shop turnings	17.00 to	18.00
Shoveling turnings	18.00 to	19.00
Cast iron borings	18.00 to	19.00
Elec. furnace, 1 ft. and under (foundry)	80.00 to	82.00
No. 1 cupola cast	84.00 to	86.00

Seattle

No. 1 hvy. melting	$ 94.00 to	$ 95.00
No. 2 hvy. melting	84.00 to	85.00
No. 2 bundles	69.00 to	70.00
No. 1 cupola cast	99.00 to	100.00
Mixed yard cast	85.00 to	87.00

Hamilton, Ont.

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 98.00
No. 2 hvy. melting, cut 2 ft. and under	85.00
No. 1 dealer bundles	118.00
No. 2 bundles	74.00
Mixed steel scrap	68.00
Bush. new fact. prep'd	113.00
Bush. new fact. unprep'd	89.00
Machine shop turnings	29.00
Short steel turnings	29.00
Mixed borings and turning	23.00
Cast scrap	97.00

Houston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 94.00 to	$ 95.00
No. 2 hvy. melting	84.00 to	85.00
No. 2 bundles	49.00 to	50.00
Machine shop turnings	37.00 to	38.00
Crushed turnings	47.00 to	48.00
Shredder scrap	102.00 to	103.00
Cut structural plate, 2 ft. and under	119.00 to	120.00
Cut structural plate, 5 ft. and under	110.00 to	111.00
Unstripped motor blocks	60.00 to	61.00
Cupola cast	95.00 to	96.00

JULY 1988

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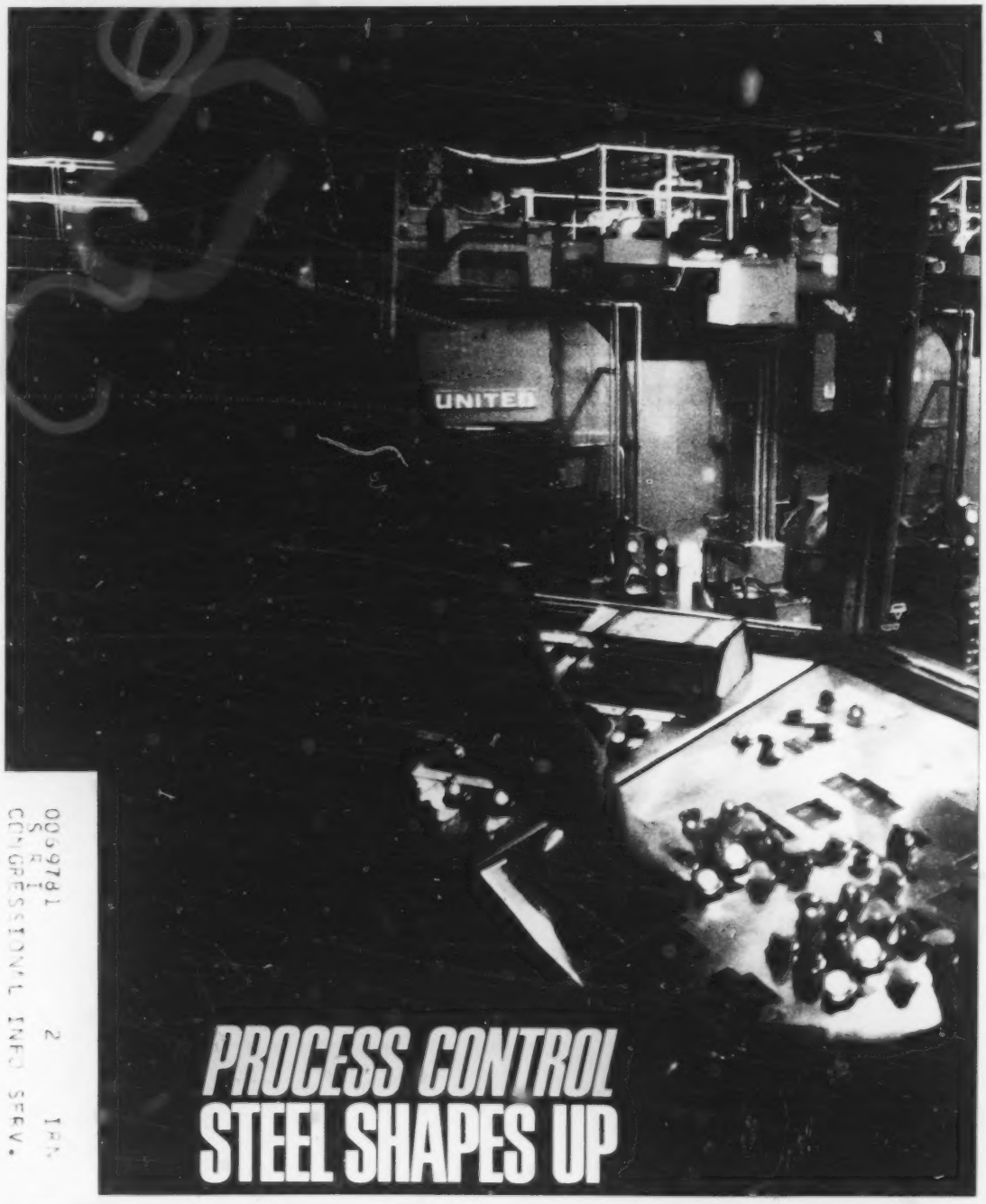
IRON AGE

THE MANAGEMENT MAGAZINE FOR METAL PRODUCERS

A Fairchild Business Publication

JULY 1988



PROCESS CONTROL
STEEL SHAPES UP

PLUS NATIONAL STEEL'S 'DETROIT' STRATEGY

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IRON AGE

JULY 1988

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WHERE'S THE OTHER SHOE?

I don't know about you, but the recent brouhaha over the trade bill left me a little irritated and dissatisfied.

After years of posturing, our lawmakers finally put together a package on trade, which included the now infamous plant closings bill, and shipped it off to the President. The game plan, if there was one, seemed to be: Give it to the big guy, let him reject it, then we've got an issue for the campaign.

Too bad. The real issue at the heart of both the trade bill and the plant closings bill was jobs—American jobs—but it got lost in the scramble.

In other words, the boys on the Potomac needed to drop a shoe that would wake the voters. Their re-election—their job—is now at stake and they're letting us know they want to keep it.

None of this is new. But it leads me to wonder what they will do with the other horn of our economic dilemma—namely the huge and ever-growing Federal budget deficit.

When Wall Street went into a tailspin last October, there was much posturing and some work. Eventually, each side gave up a few bucks and went back to business as usual.

Unfortunately, the mortgage on the future continues to grow, the foreign funds we have been using to finance it are dwindling month-by-month, and interest rates are on the rise because the government needs some method, besides printing more money, to finance this public largesse.

Now, I'm not naive enough to think that an unsexy issue like the budget deficit would be attractive in an election year. There are easier matters to explain to the great unwashed.

But as long as our government continues to outspend its income and demand more and more of the limited capital available in the marketplace, there's a very obvious disincentive to continued economic growth. If we carry this kind of debt with us into the next economic eclipse, it could be a long time before we again see daylight.

So, I guess I just can't help wondering: When they drop the other shoe, what it will sound like?

BY MICHAEL MARLEY

IRON AGE

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PRICE & PRODUCTION DATA

(Effective June 6, 1988)

Steel production by districts, thousands of tons (000 omitted)

	Last Week	Two Weeks Ago	Month Ago	Year Ago
Northeast Coast	280	278	276	223
Pittsburgh	204	206	204	191
Youngstown	129	118	127	107
Lake Erie	162	170	170	130
Detroit	160	170	171	148
Chicago	533	560	559	476
Midwest	183	194	203	189
Southern	218	222	232	185
Western	100	101	104	53
U.S. Production	1,969	2,019	2,046	1,702

Source: American Iron & Steel Institute

Lake Superior Ore Prices

51.50% Fe Natural delivered lower Lake ports unless otherwise stated. Rail transportation, handling and unloading may be charged to buyer. Coarse ore 80¢ premium.

Pellets (per iron unit natural)..... gross-ton 37.344*
Pellets (per iron unit natural)..... gross-ton 46.84-59.4**
Pellets (per iron unit natural)..... gross-ton 72.45-86.9***
Mesabi, regular-unscreened..... gross-ton 32.53
Mesabi, non-bessemer..... gross-ton 30.03-31.53

*37.344¢—U.S. Steel, 5/20/87, FOB Mount Iron, Minn. **46.84¢—Inland Steel Mining, 1/1/87. 58.0¢—Mineral Services, 8/13/85. 59.4¢—Pickands Mather, 8/1/85, delivered hold of vessel, upper Lake ports. ***72.45¢—Cleveland-Cliffs, 12/30/86; Oglebay Norton, 3/1/87. 86.9¢—Hanna Mining, 2/26/82.

STEEL PRODUCTION, COMPOSITE PRICES

(Effective June 6, 1988)

U.S. Steel Production	Last Week	Two Weeks Ago	To Date 1988	To Date 1987
Net tons, in thousands	1,969	2,019	43,538	35,045
Capability Utilization Rate	91.9	94.2	91.1	73.5

Composite Prices	This Week	Week Ago	Month Ago	Year Ago
Finished Steel Base* (¢/lb.—eff. 4/3/88)	24.333	24.333	24.333	25.236
Pig Iron** (Net ton= 2000 lbs.)	$213.00	$213.00	$213.00	$213.00
Scrap No. 1 hvy.*** (Gross ton=2240 lbs.)	$102.83	$102.83	$105.17	$ 77.17
No. 2 bundles	$ 70.50	$ 70.50	$ 72.17	$ 52.83

Scrap Comparison (Gross Ton)

No. 1 steel, Pittsburgh	$104.50	$104.50	$107.50	$ 82.50
No. 1 steel, Philadelphia	96.50	96.50	96.50	71.50
No. 1 steel, Chicago	107.50	107.50	111.50	77.50
No. 1 bundles, Detroit	108.50	109.50	117.50	90.50
Low Phos., Youngstown	115.50	115.50	120.50	87.50
No. 1 mach'y cast., Pgh	98.50	98.50	98.50	81.50
No. 1 mach'y cast., Phila.	111.50	111.50	111.50	93.50
No. 1 mach'y cast., Chi.	128.50	128.50	128.50	101.50

*Finished Steel Composite: Weighted index of steel bars, structurals, plates, rails, hot rolled and cold rolled sheets.
**Pig Iron Composite: Based on average prices for basic and foundry pig iron at representative producing points within the U.S.
***Steel Scrap Composite: Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

NONFERROUS PRICES

(Effective June 6, 1988) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated.

Primary Metal Prices

(cents per lb.)	current price	last price	date of change
Aluminum (LME)	117.00	116.00	6/6/88
Copper (C)	115.00	103.00	6/3/88
Lead	36.00	34.00	5/23/88
Magnesium Ingot	153.00	148.00	12/9/85
Nickel (LME)	625.00	587.00	6/6/88
Zinc	63.00	60.00	6/3/88

ALUMINUM: Avg. for last week & previous week. COPPER (C)=cathode. LEAD: common grade. MAGNESIUM: 99.8% pig, delivered. NICKEL: Avg. for last week & previous week. ZINC: high grade.

Antimony, American Laredo, Texas	$2.00
Beryllium-aluminum 5% Be, per lb. contained Be	$260.00
Beryllium-copper strip No. 25, per lb.Be	$8.00
Beryllium powder SP200F, per lb.	$244.00
Cadmium, ton lots	$1.50
Calcium, ton lots, crown	$3.92
Chromium, 99.5% electro	$4.62
Cobalt, 99%, cathode	$12.50
Gold, per troy oz.	$464.55
Indium, per troy oz.	$9.95
Iridium, per troy oz.	$325.00
Magnesium sticks, 10,000 lbs	$2.12
Mercury, per 76-lb., f.o.b. N.Y.	$348.00
Molybdenum, lb. tech. moly oxides, 20 lb. MO can	$3.45
Palladium, per troy oz.	$133.00
Platinum, per troy oz.	$613.00
Rhodium, per troy oz.	$1,235.00
Silver ingots, per troy oz.	$7.33
Titanium sponge, melt grade	$4.00
Tungsten ore, hyd red	$9.53-9.85
Vanadium	$6.00
Zirconium sponge	$11.20-17.00

(Per lb. unless otherwise noted)

Straits Tin Price

(U.S. cents per lb. EX-SMELTER, based on daily market in Kuala Lumpur in Malaysian dollars per kilo.)

May 30—314.00 June 2—316.00
May 31—312.00 June 3—316.00
June 1—315.00

Scrap Prices

Brass Mill Scrap

(Cents per lb.; over 20,000 lbs. add 1¢ per lb.)

	Solids	Turnings
Copper	84	79
Yellow brass	72	71
Red brass	66½	62½
Comm. bronze	68½	63½
Mang. bronze	48½	47½
Free cutting rod ends	63½	62½

Custom Smelters Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	83
No. 2 copper wire	73
Light copper	67

Ingot Makers Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	74
No. 2 copper wire	65
Light copper	58
No. 1 composition	57
No. 1 comp. turnings	57
Hvy. yellow brass solids	41
Hvy. yellow brass turnings	35
Radiators	37

Aluminum		
New mixed clips	64	— 65
Old sheet	53	— 54
Old cast	55	— 56
Clean dry borings	45	— 46

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Aluminum

Segregated clippings	56	— 57
Mixed L.C. clips	55	— 56
Old sheets and cast	46	— 47
Borings and turnings	38	— 39
Duraluminum clippings	47	— 48

Copper and Brass

No. 1 copper wire	69	— 71
No. 2 copper wire	59	— 60
Light copper	53	— 54
Radiators	37	— 38
No. 1 composition	57	— 58
No. 1 composition turnings	53	— 54
Cocks and faucets	47	— 48
Clean heavy yellow brass	43	— 44
Brass pipe	51	— 52
New soft brass clippings	63	— 64

Lead

Heavy soft lead	13	— 14
Whole batteries	2	— 3
Type metal	21	— 22
Electrotype	13	— 14

Nickel

Nickel solids	445	—455
Nickel rod ends	438	—448
Nickel sheets, clips	428	—438
Nickel turnings	254	—274

Zinc

New zinc clippings	18	— 19
Old diecast zinc	14	— 15

EFFECTIVE JUNE 6, 1988

(Effective June 6, 1988) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated. Prices are the opinions of Iron Age editors and correspondents, based on contacts with dealers, brokers, generators and users in the industry on the effective date listed above.

Ferrous Scrap Prices

Pittsburgh

No. 1 hvy. melting	$ 104.00 to	$ 105.00
No. 2 hvy. melting	94.00 to	95.00
No. 1 dealer bundles	125.00 to	126.00
No. 1 factory bundles (auto)	134.00 to	135.00
No. 2 bundles	64.00 to	65.00
No. 1 busheling	129.00 to	130.00
Machine shop turnings	25.00 to	26.00
Shoveling turnings	69.00 to	70.00
Cast iron borings	68.00 to	69.00
Low phos. punchings plate	142.00 to	143.00
Heavy turnings	97.00 to	98.00
No. 1 RR hvy. melting	130.00 to	131.00
Rails, 2 ft. and under	148.00 to	149.00
Scrap rails, random lgth.	137.00 to	138.00
RR specialties	138.00 to	139.00
No. 1 machinery cast	98.00 to	99.00
Cupola cast	90.00 to	91.00
Heavy breakable cast	40.00 to	41.00
Stainless		
18-8 bundles and solids	1,290.00 to	1,300.00
18-8 turnings	1,190.00 to	1,200.00

Chicago

No. 1 hvy. melting	$ 107.00 to	$ 108.00
No. 2 hvy. melting	104.00 to	105.00
No. 1 dealer bundles	115.00 to	116.00
No. 1 factory bundles (auto)	131.00 to	132.00
No. 2 dealer bundles	80.00 to	81.00
No. 1 busheling	119.00 to	120.00
Shredder scrap	120.00 to	121.00
Machine shop turnings	51.00 to	52.00
Mixed borings and turnings	43.00 to	44.00
Shoveling turnings	60.00 to	61.00
Cast iron borings	66.00 to	67.00
Low phos. forge crop	154.00 to	155.00
Low phos. punchings plate 1/4 in. and heavier	170.00 to	171.00
Low phos. 2 ft. and under	163.00 to	164.00
No. 1 RR hvy. melting	112.00 to	113.00
Scrap rails random lgth	140.00 to	141.00
Transfer rails	154.00 to	155.00
Rails, 2 ft. and under	164.00 to	165.00
RR couplers and knuckles	133.00 to	134.00
RR car axles	158.00 to	159.00
No. 1 machinery cast	128.00 to	129.00
Cupola cast	108.00 to	109.00
Stove plate	128.00 to	129.00
Steel car wheels	144.00 to	145.00
Stainless		
18-8 bundles and solids	1,150.00 to	1,160.00
18-8 turnings	1,000.00 to	1,010.00
430 bundles and solids	240.00 to	250.00
430 turnings	155.00 to	165.00

Philadelphia

No. 1 hvy. melting	$ 95.00 to	$ 98.00
No. 2 hvy. melting	85.00 to	88.00
No. 1 dealer bundles	127.00 to	130.00
No. 2 dealer bundles	65.00 to	68.00
No. 1 busheling	122.00 to	125.00
Shredder scrap	120.00 to	123.00
Machine shop turnings	29.00 to	32.00
Mixed borings and turnings	29.00 to	32.00
Shoveling turnings	50.00 to	53.00
Low phos. 5 ft. and under	115.00 to	118.00
Low phos. 2 ft. punchings	137.00 to	140.00
Elec. furnace bundles	127.00 to	130.00
RR specialties	124.00 to	127.00
Rails, 2 ft. and under	145.00 to	148.00
Cupola cast	102.00 to	105.00
Heavy breakable cast	52.00 to	55.00
No. 1 machinery cast	110.00 to	113.00

Detroit

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 69.00 to	$ 70.00
No. 2 hvy. melting	67.00 to	68.00
No. 1 dealer bundles	108.00 to	109.00
No. 2 bundles	51.00 to	52.00
No. 1 busheling	106.00 to	107.00
Drop forge flashings	64.00 to	65.00
Machine shop turnings	51.00 to	52.00
Mixed borings and turnings	23.00 to	24.00
Shoveling turnings	51.00 to	52.00
Cast iron borings	57.00 to	58.00
Heavy breakable cast	41.00 to	42.00
Mixed cupola cast	58.00 to	59.00
Automobile cast	80.00 to	81.00
Stainless		
18-8 bundles and solids	1,090.00 to	1,100.00
18-8 turnings	690.00 to	700.00
430 bundles and solids	220.00 to	230.00

Youngstown

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 89.00 to	$ 90.00
No. 2 hvy. melting	82.00 to	83.00
No. 1 dealer bundles	110.00 to	111.00
No. 2 dealer bundles	51.00 to	52.00
Machine shop turnings	45.00 to	46.00
Shoveling turnings	45.00 to	46.00
Low phos. plate	115.00 to	116.00
Electric furnace bundles	113.00 to	114.00
Galvanized bundles	111.00 to	112.00

Cleveland

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 83.00 to	$ 84.00
No. 2 hvy. melting	75.00 to	76.00
No. 1 dealer bundles	110.00 to	111.00
No. 1 factory bundles	104.00 to	105.00
No. 2 bundles	45.00 to	46.00
No. 1 busheling	107.00 to	108.00
Machine shop turnings	48.00 to	49.00
Shoveling turnings	48.00 to	49.00
Cast iron borings	48.00 to	49.00
Cut structural & plates, 5 ft. and under	98.00 to	99.00
Cut structural & plates, 2 ft. and under	125.00 to	126.00
Low phos. punchings plate	131.00 to	132.00
Foundry steel, 2 ft. & under	78.00 to	79.00
No. 1 RR hvy. melting	94.00 to	95.00
Rails, 2 ft. and under	143.00 to	144.00
Rails, 18 in. and under	147.00 to	148.00
No. 1 machinery cast	84.00 to	85.00
Mixed cast	49.00 to	50.00
Stainless		
18-8 bundles	1,095.00 to	1,105.00
18-8 turnings	695.00 to	705.00
430 bundles	225.00 to	235.00

Buffalo

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 85.00 to	$ 86.00
No. 2 hvy. melting	77.00 to	78.00
No. 1 busheling	110.00 to	111.00
No. 1 dealer bundles	110.00 to	111.00
No. 2 bundles	43.00 to	44.00
Machine shop turnings	26.00 to	27.00
Mixed borings and turnings	26.00 to	27.00
Shoveling turnings	32.00 to	33.00
Cast iron borings	34.00 to	35.00
Low phos. plate	116.00 to	117.00
Structural and plate, 2 ft. and under	125.00 to	126.00
Rails, 2 ft. and under	128.00 to	129.00
Scrap rails, random lgth.	109.00 to	110.00
No. 1 machinery cast	104.00 to	105.00
No. 1 cupola cast	87.00 to	88.00

St. Louis

No. 1 hvy. melting	$ 88.00 to	$ 89.00
No. 2 hvy. melting	68.00 to	69.00
No. 1 busheling	116.00 to	117.00
No. 1 dealer bundles	122.00 to	123.00
No. 2 bundles	71.00 to	72.00
Machine shop turnings	46.00 to	47.00
Shoveling turnings	50.00 to	51.00
Cast iron borings	57.00 to	58.00
No. 1 RR hvy. melting	113.00 to	114.00
Rails, random length	113.00 to	114.00
Rails, 5 ft. and under	123.00 to	124.00
Plate and structural, 5 ft. and under	113.00 to	114.00
Cupola cast	89.00 to	90.00
Heavy breakable cast	43.00 to	44.00
Stove plate	112.00 to	113.00
Steel car wheels	122.00 to	123.00
Rerolling rails	130.00 to	131.00
Unstripped motor blocks	66.00 to	67.00

Birmingham

No. 1 hvy. melting	$ 91.00 to	$ 92.00
No. 2 hvy. melting	87.00 to	88.00
No. 1 dealer bundles	96.00 to	97.00
No. 2 bundles	74.00 to	75.00
No. 1 busheling	96.00 to	97.00
Shredder scrap	117.00 to	118.00
Machine shop turnings	38.00 to	39.00
Shoveling turnings	51.00 to	52.00
Cast iron borings	32.00 to	33.00
Electric furnace bundles	81.00 to	82.00
Elec. furnace, 3 ft. & under	96.00 to	97.00
Structural and plate, 2 ft	131.00 to	132.00
Structural and plate, 4 ft	119.00 to	120.00
No. 1 RR hvy. melting	119.00 to	120.00
Scrap rails, random lgth.	116.00 to	117.00
Rails, 2 ft. and under	141.00 to	142.00
Angles and splice bars	124.00 to	125.00
No. 1 cupola cast	101.00 to	102.00
Unstripped motor blocks	89.00 to	90.00

Cincinnati

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 82.00 to	$ 83.00
No. 2 hvy. melting	77.00 to	78.00
No. 1 dealer bundles	96.00 to	97.00
No. 2 bundles	51.00 to	52.00
No. 1 busheling	102.00 to	103.00
Machine shop turnings	28.00 to	29.00
Shoveling turnings	37.00 to	38.00
Cast iron borings	40.00 to	41.00
Low phos. 18 in. and under	118.00 to	119.00
Rails, random length	95.00 to	96.00
Rails, 2 ft. and under	118.00 to	119.00
No. 1 cupola cast	87.00 to	88.00
Heavy breakable cast	54.00 to	55.00
Drop broken cast	93.00 to	94.00

New York

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 71.00 to	$ 73.00
No. 2 hvy. melting	63.00 to	64.00
No. 2 dealer bundles	35.00 to	37.00
Mixed borings and turnings	10.00 to	11.00
Shoveling turnings	10.00 to	12.00
Clean cast, chem. borings	37.00 to	38.00
No. 1 machinery cast	81.00 to	82.00
Mixed yard cast	53.00 to	54.00
Heavy breakable cast	18.00 to	20.00
Stainless		
18-8 prepared solids	920.00 to	940.00
18-8 turnings	580.00 to	600.00
430 prepared solids	270.00 to	290.00
430 solids	275.00 to	285.00

Boston

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 70.00 to	$ 72.00
No. 2 hvy. melting	60.00 to	62.00
No. 1 dealer bundles	88.00 to	90.00
No. 2 bundles	33.00 to	35.00
No. 1 busheling	83.00 to	85.00
Shredder scrap	78.00 to	80.00
Machine shop turnings	18.00 to	20.00
Shoveling turnings	23.00 to	25.00
No. 1 machinery cast	85.00 to	87.00
Mixed cupola cast	44.00 to	46.00
Heavy breakable cast	22.00 to	24.00

San Francisco

No. 1 hvy. melting	$ 63.00 to	$ 65.00
No. 2 hvy. melting	57.00 to	59.00
No. 1 dealer bundles	55.00 to	57.00
No. 2 dealer bundles	43.00 to	44.00
Machine shop turnings	15.00 to	16.00
Cast iron borings	15.00 to	16.00
No. 1 cupola cast	87.00 to	89.00

Los Angeles

No. 1 hvy. melting	$ 73.00 to	$ 75.00
No. 2 hvy. melting	67.00 to	69.00
No. 1 dealer bundles	65.00 to	67.00
No. 2 dealer bundles	47.00 to	49.00
Machine shop turnings	17.00 to	18.00
Shoveling turnings	18.00 to	19.00
Cast iron borings	18.00 to	19.00
Elec. furnace, 1 ft. and under (foundry)	80.00 to	82.00
No. 1 cupola cast	84.00 to	86.00

Seattle

No. 1 hvy. melting	$ 94.00 to	$ 95.00
No. 2 hvy. melting	84.00 to	85.00
No. 2 bundles	69.00 to	70.00
No. 1 cupola cast	104.00 to	105.00
Mixed yard cast	85.00 to	87.00

Hamilton, Ont.

Brokers buying prices per net ton on cars

No. 1 hvy. melting	$ 95.00
No. 2 hvy. melting, cut 2 ft. and under	82.00
No. 1 dealer bundles	116.00
No. 2 bundles	66.00
Mixed steel scrap	68.00
Bush. new fact. prep'd	113.00
Bush. new fact. unprep'd	89.00
Machine shop turnings	36.00
Short steel turnings	36.00
Mixed borings and turning	23.00
Cast scrap	97.00

Houston

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 91.00 to	$ 92.00
No. 2 hvy. melting	81.00 to	82.00
No. 2 bundles	47.00 to	48.00
Machine shop turnings	37.00 to	38.00
Crushed turnings	47.00 to	48.00
Shredder scrap	99.00 to	100.00
Cut structural plate, 2 ft. and under	116.00 to	117.00
Cut structural plate, 5 ft. and under	107.00 to	108.00
Unstripped motor blocks	60.00 to	61.00
Cupola cast	95.00 to	96.00